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Portable

## **No-Nonsense Warranty**

Larsen will repair or replace, without charge, any Larsen Antenna which fails within three years of the purchase date. Larsen is not responsible for any incidental or consequential damages due to failure of the antenna under this warranty or any implied warranty. This exclusion may not apply in all areas of the USA or Canada.

In the application of its "No-Nonsense Warranty" it is the intent of Larsen to always use the yardstick of the Golden Rule.

For service under warranty, return the antenna to your Larsen dealer or to the factory with a note describing the problem. You may reach Larsen Customer Service at 800-426-1656, Monday through Friday, 7 am to 5 pm Pacific time.

### Full Line & Parts Information

Larsen produces thousands of antenna combinations. This amateur catalog lists the most popular models. For information on the full range of Larsen Antenna products, contact your Larsen dealer, local Larsen sales representative or the factory office.

Nearly every component of a Larsen Antenna is available on a replacement basis. Contact your local dealer for parts as needed.

## **Ordering Information**

The Larsen Modular System allows you to order product in two ways:

1. Order components and combine antennas, mounts and connectors as needed

2. Order complete antenna kits if that's more convenient

Complete product breakdowns are shown in the full Larsen Catalog or Price Book.

## Ordering example:

NMO 150 K

This is the complete antenna with permanent mount, RG 58A/U coax and a PL 259 connector.

NMO 150

This is the antenna whip and base, specifying type of mount (NMO) and frequency.

NMO K NOCONN

This is the mount and cable kit, NMO type, to match the antenna, specifying CX type coax (RG 58A/U).

PL 259

This the PL connector added to the package.

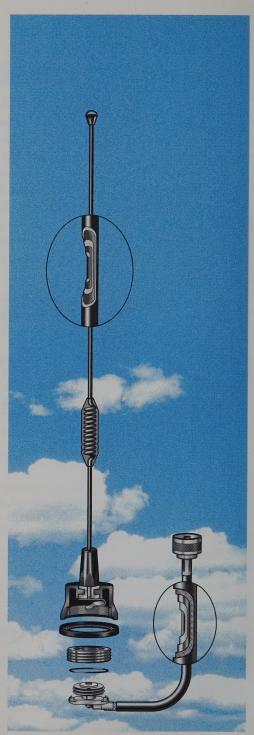
## Introduction

### High Performance Heritage

Since 1965, the Larsen name has meant performance in professional antennas. Founder Jim Larsen's (W7DZL, K7GE) passion for amateur radio helped create a reputation for making antennas with greater range and outstanding quality. He expressed the performance commitment to the customer by providing "Golden Rule" service. Today, Larsen Electronics produces more than 1,000 antenna models from 27 MHz to 2 GHz for the most demanding international, commercial and amateur applications.

### Innovative Technical Design

Antenna development is a blend of science and art. Over the years, Larsen engineering has developed a variety of patents, trademarked processes and unique designs. All to produce the finest performing antenna possible for today's sophisticated amateur. Technical achievement and use of advanced materials play a major role in electrical efficiency (greater range) and mechanical strength (durability). Innovations of note include:



All of Larsen's whips use our trademarked copper plating process. When plain steel whips are used for antennas, much of the radio's transmit power is wasted as heat when passing through the steel rod. By placing a unique coating of nickel and copper on the rod, Larsen whips take the radio power and pass it through the conductive copper plating. The result is more RF signal, not heat.

Larsen antenna bases and shells use an advanced polymer plastic called Makroblend. Today, this state-of-the-art material is a better choice than Lexan plastics due to its physical durability and environmental resistance.

Today's advanced radios offer outstanding transmission quality. Many operate with state-of-the-art digital components which demand low noise environments for best operation. Larsen's new premium quality Digi-Shield coax is expressly designed for those requirements. Digi-Shield uses 100% duofoil aluminum shielding with 95% braid coverage for low loss and superior performance. It is also available with teflon dielectric for installations with lots of mechanical stress. Digi-Shield helps with radio performance and reduces the RF influence on vehicle electronics.



## **Technical Guide**

### Frequency Bands

Larsen amateur antennas are available in the following bands:

10m 27 - 30 MHz 6m 50 - 54 MHz 2m 144 - 148 MHz 1.25m 220 - 224 MHz 70cm 440 - 450 MHz 35cm 902 - 928 MHz 23cm 1215 - 1300 MHz

Not all antennas are available in all bands. Consult the product listings for specifications.

### Electrical Types

1/4 Wave—A single radiating element 1/4 wavelength long. It is the simplest type of antenna. A loading or matching coil is not required. Typical gain is unity when mounted on suitable ground plane.

Loaded 1/4 Wave – By using a loading coil that places a portion of the circuit at the base, the loaded 1/4 wave is able to use a shorter radiating element. Typical gain is comparable to fender mounted regular 1/4 wave when the loaded 1/4 wave is roof mounted.

1/2 Wave – A single radiating element 1/2 wavelength long. Because the end fed impedance of the antenna is not suitable for matching the radio, an impedance matching transformer is used at the base of the radiating element. Suitable for no ground plane use with unity gain; 2.4 dBd gain with a ground plane.

5/8 Wave – A single radiating element 5/8 wavelength long. The 5/8 wave has the best performance from a single element with 3 dBd gain with a suitable ground plane. Because the end fed impedance of the antenna is not suitable for matching the radio, an impedance matching transformer is used at the base of the radiating element.

Collinear – Two elements separated by a phasing coil for increased gain. Three styles are common:

- (1) 5/8 over 1/2; top element is 5/8 wave and the bottom is 1/2 wave; 4.5 dBd gain; no transformer required.
- (2) 5/8 over 1/4: top element is 5/8 wave and bottom element is 1/4 wave; 3 dBd gain; no transformer required.
- (3) 5/8 over 5/8 over 1/4: both elements are 5/8 wave; 5 dBd gain on suitable ground plane; end fed impedance does not match the transmitter's impedance, so a transformer is used.

VSWR- All Larsen antennas operate with a VSWR of 1.5 to 1 or less across the transmit bands.



## **Series Designations**

You'll find a wide variety of antenna types available for your amateur application. Each will provide excellent performance when properly used. Each has its own advantages depending upon your physical and electrical requirements.

### **NMO**

The NMO mount, the most popular mounting style, is a permanent 3/4" hole compatible with Motorola standard TAD/TAE mounts. Larsen NMO mounts are premium quality designs using brass for conductivity with nickel-tin plated steel for strength with no corrosion. Coax is fully soldered to mount.

### LM

The Larsen Mount (LM), the industry standard 5/16"- 24 THDS stud mount, uses a permanent 3/4" hole. Larsen developed the industry's first stud mounts for simple installation, reliable durability and low noise.

### NLA

The NLA is a 3/8" hole mount compatible with snap-in type antennas. This is the basic GE style with good electrical properties. NLA antennas can be used on the Antenna Specialist K-49 or K-57 mounts.

### PO/PHW

The PO is a permanent, 5/8" hole mount. The antenna fits on either an SO-239 or the PO mount. The PHW is a half-wave suitable for use at no ground plane. It is a "portable" antenna with a flexible cable whip that can be hung from any elevated object, so it is good for outdoor applications. Fits on PL-239 connector.

### OM

Self mounting OM uses a 3/8" permanent hole. Coax is pre-installed inside the coil. This mount is ideal for non-metallic, no ground plane surfaces. Mounts with three self-tapping screws or nuts/bolts.

### KG

Kūlglass™ glass mount style for standard vehicle use; no holes required. Superior performance from patented, low-impedance design has less than 0.5 dB loss vs a roof-top mount. Superior grip to glass using 3M's best adhesive plus a unique bonding fluid. May be removed and remounted.

### BSA/FB

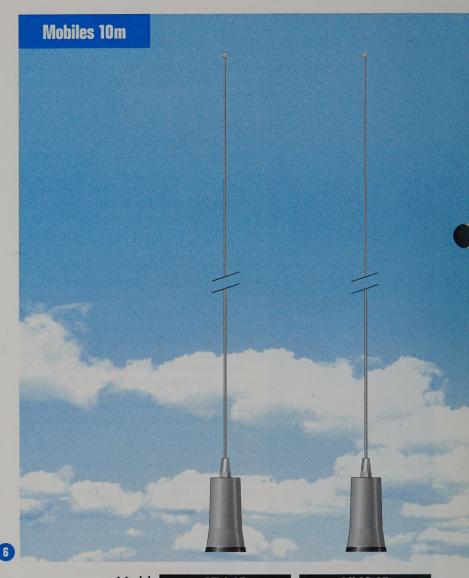
Omni-directional base stations fit PL-259 connectors; all mounting hardware included. Compact designs are sturdy and weather resistant yet light weight. May be easily moved.

### YA

Directional Yagi antennas; available with N or PL connector; all mounting hardware included. Rugged, fully welded design using dual wall aluminum booms stand up to weather and wind extremes.

### KD

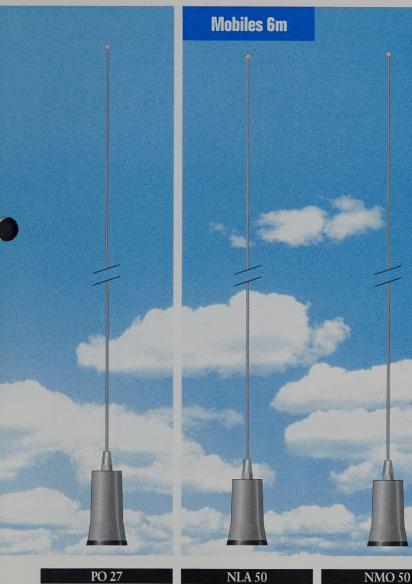
Kūlduckie <sup>™</sup> portable antennas; most common with BNC; dozens of mount options available. Superior performance from copper/brass radiating elements, fully soldered construction, silver contacts, double-spring BNC. All are scope-tuned.



Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Height
Comments

NLA 27
27-30 MHz
Unity
Loaded 1/4 Wave
50 ohms
200 watts
3/8" Hole
52 1/4"

NMO 27
27-30 MHz
Unity
Loaded 1/4 Wave
50 ohms
200 watts
3/4" Hole
52 1/4"



PO 2/	
27-30 MHz	
Unity	
Loaded 1/4 Wave	
50 ohms	
200 watts	
3/4" Hole	
52 1/4"	

NLA 30	
47-54 MHz	
Unity	
Loaded 1/4 Wave	
50 ohms	
200 watts	
3/8" Hole	
51 3/4"	

NMO 50
47-54 MHz
Unity
Loaded 1/4 Wave
50 ohms
200 watts
3/4" Hole
51 3/4"



Model	
Frequency Range	
Gain	
Electrical Type	
Impedance	
Power Rating	
Mount Type	
Height	
Comments	

PO 50
47-54 MHz
Unity
Loaded 1/4 Wave
50 ohms
200 watts
3/4" Hole
51 3/4"

KG 144
144-174 MHz
2.4 dBd
1/2 Wave
50 ohms
100 watts
Glass Mount
48"
Ground Plane Required
For Gain



LM 150
144-174 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
3/4" Hole
53 3/4"

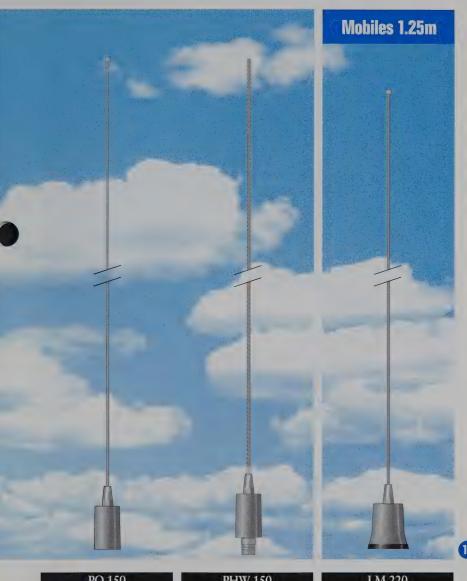
NLA 150	
144-174 MHz	I
3 dBd	
5/8 Wave	ı
50 ohms	
200 watts	I
3/8" Hole	I
50 3/4"	

NMO 150
144-174 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
3/4" Hole
50 3/4"



1710	ouei
Frequency R	ange
	Gain
Electrical 7	Гуре
Imped	ance
Power Ra	iting
Mount 7	Гуре
He	eight
Comm	ents

OM 150 K
144-174 MHz
2.4 dBd
1/2 Wave
50 ohms
200 watts
Self Mount 3/8" Hole
51 1/4"
Ground Plane Required
For Gain



PO 150
144-174 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
3/4" Hole
51 1/8"

144-1/4 MHz
2.4 dBd
1/2 Wave
50 ohms
200 watts
PL 259 Connector
51 1/8"
Ground Plane Required
For Gain "Fley" Cable White

LM 220
220-225 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
3/4" Hole
33 3/4"



Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Base/Max Height
Comments

NMO 220
220-225 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
3/4" Hole
33 3/4"

OM 220 K
220-225 MHz
2.4 dBd
1/2 Wave
50 ohms
200 watts
3/8" Hole Self Mount
34 1/4"
Ground Plane Required
For Gain





PO 220
220-225 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
3/4" Hole
34 1/8"

KG 440
440-460 MHz
2.4 dBd
1/2 Wave
50 ohms
100 watts
Glass Mount
13 3/4"
Ground Plane Required
For Gain

LM 440
440-460 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
200 watts
3/4" Hole
30 5/8"



LMC 4400
440-460 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
200 watts
LA or LM Mount
29 1/8"

NMO 440
440-460 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
200 watts
3/4" Hole
30 1/4"



PO 440
440-460 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
200 watts
3/4" Hole
31 3/4"







Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Height
Comments

KG 900
865-970 MHz
3 dBd
5/8 over 1/2 Wave
50 ohms
50 watts
Glass Mount
18 5/8"
Ground Plane Required
For Gain

LM 900
865-965 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
150 watts
3/4" Hole
13 1/4"



NMO 1290 B
1240-1300 MHz
5 dBd
5/8 over 5/8 over 1/4 Wave
50 ohms
200 watts
3/4" Hole
17"



Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Height
Comments

BNCQ
144-512 MHz
Unity
1/4 Wave
50 ohms
200 watts
Fits BNC Female Connector
22"
Trim to Eroquener

NLAQ	
144-512 MHz	
Unity	
1/4 Wave	
50 ohms	
200 watts	
3/8" Hole	
22 1/8"	
Trim to Frequency	
•	



NMOQ
144-512 MHz
Unity
1/4 Wave
50 ohms
200 watts
3/4" Hole
22 1/8"
Trim to Frequency
î î

NMOQ SPEC
144-512 MHz
Unity
1/4 Wave
50 ohms
200 watts
3/4" Hole
21"
Trim to Frequency
* *

Q
144-512 MHz
Unity
1/4 Wave
50 ohms
200 watts
LA or LM Mount
21"
Trim to Frequency
• •

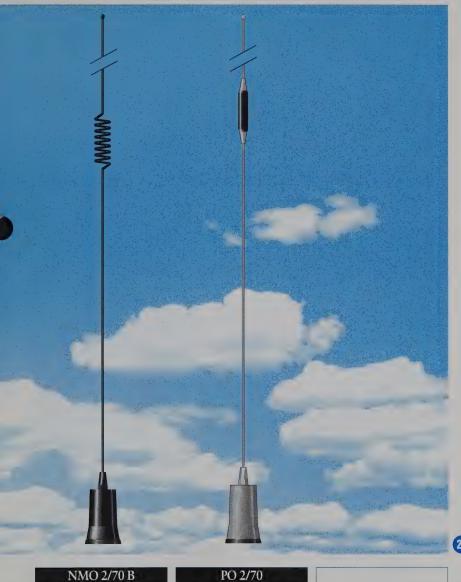


Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Height
Comments

KG 2/70
144-148/442-448 MHz
2.5 / 4.5dBd
1/2 Wave/Collinear
50 ohms
50 watts
Glass Mount
32 3/4"
Ground Plane Required
For Gain

NLA 2//0
144-148/440-450 MHz
2.4 / 4 dBd
5/8 Wave/Collinear
50 ohms
100 watts
3/8" Hole
36 3/4"





NMO 2//0 B
144-148/440-450 MHz
2.4 / 4 dBd
5/8 Wave/Collinear
50 ohms
100 watts
3/4" Hole
36 3/4"

## 144-148/440-450 MHz 2.4 / 4 dBd 5/8 Wave/Collinear 50 ohms 100 watts 3/4" Hole 36 1/2"

Dual band antennas require a dual band coupler. See accessories for Larsen AD 2/70 specifications.

## **Permanent Mounts**

### NMO Mount

The Larsen version NMO mount is the only industry mount combining the strength of steel teeth with the superior conductivity of a brass contact ring. A unique plating process (nickel/tin) applied to the steel eliminates the corrosion problems common with differing metals. Fully soldered coax increases the mechanical durability of the mount. Order connector separately. Thick surface versions available.

Mount Only	Part No. NMO B
Mount, 17° CX coax, PL 259	Part No. NMO K

### LM/CM Mount

Larsen's own stud mount has no chance for vibration. The result is low noise operation. The 3/4" hole size mount is easy to work with and simple to install. Order connector separately. Thick surface versions available.

Mount Only	Part No. LM/CM B
Mount, 17' CX coax, PL 259	Part No. LM/CM K

### NLA Mount

The new Larsen antenna (NLA) is an all brass, 3/8" hole, snap-in mount. The 3/8" hole can be drilled with standard bits. The cable attaches inside the mount reducing stress. Order connector separately.

Mount Only, no coax	Part No. NLA B
Mount, 17° CX coax, PL 259	Part No. NLA K

#### PO Mount

The PO is an SO-239 UHF style mount. This permanent 3/4" hole mount is constructed of chrome plated brass. Order connector separately.

Mount Only, no coax	Part No. PO B
Mount, 17° CX coax, PL 259	Part No. PO K



## **Temporary Mounts**

### MM

Heavy duty rectangular magnetic mount; 50# pull strength; teflon tape backer protects vehicle; black; 58FPC standard.

Part No. NMO MM	Part No. LM/CM MM
Part No. NLA MM	Part No. PO MM

#### MM R

Compact styled round mag mount; 90# pull strength; teflon tape backer protects vehicle; black; 58FCP standard.

Part No. NMO MM R Part No. PO MM R Part No. LM/CM MM R

### TLM

Heavy duty trunk lid mount with set screw attachment; proper height to de-couple antenna from trunk surface; aluminum construction standard with bright finish; for black version specify "B" after part number; PL 259 standard.

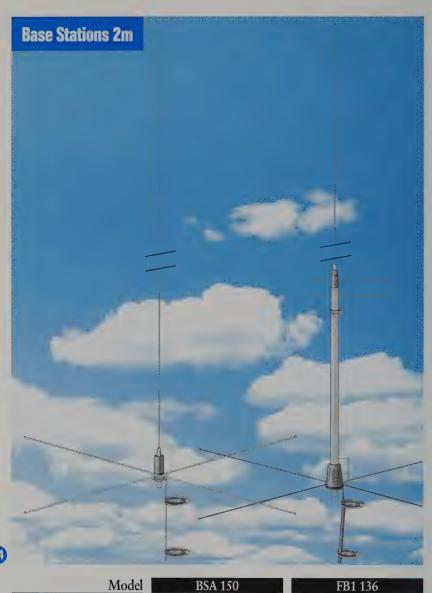
Part No. NMO TLM	Part No. LM/CM TLM
Part No. NLA TLM	Part No. PO TLM

#### **TMB**

Sturdy trunk gutter mount bracket; permanent screws, not visible from outside of vehicle; electro polished stainless steel, standard in bright finish; for black version, specify "B" after part number; PL 259 standard.

Part No. NMO TMB	Part No. LM/CM TMB
Part No. NLA TMB	Part No. PO TMB





Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Height
Comments

144-174 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
Base Mount Kit Included
51 5/8"

FB1 136
136-230 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
200 watts
Base Mount Kit Included
96"





D3A 220
220-225 MHz
3 dBd
5/8 Wave
50 ohms
200 watts
Base Mount Kit Included
33 3/4"

BSA 440
440-460 MHz
4.5 dBd
5/8 over 1/2 Wave
50 ohms
200 watts
Base Mount Kit Included
30"

102 770
440-460 MHz
3 dBd
5/8 over 1/4 Wave
50 ohms
200 watts
Base Mount Kit Included
30 1/4"

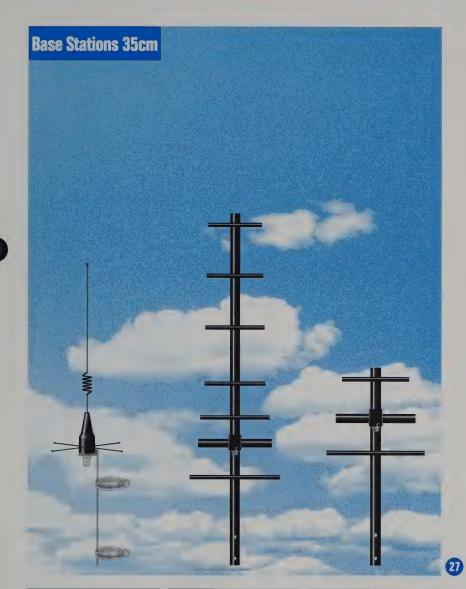


Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Length or Height
Comments

440-460 MHz
11 dBd
8-Element Directional
50 ohms
300 watts
Base Mount Kit Included
57 1/4"

Select PL or N Connector

YA2 440 PL (or N)
440-460 MHz
8.5 dBd
5-Element Directional
50 ohms
300 watts
Base Mount Kit Included
35 3/4"
Select PL or N Connector



FB2 900
865-965 MHz
3 dBd
5/8 over 1/4 Wave
50 ohms
200 watts
Base Mount Kit Included
12 1/4"

1113 700
865-965 MHz
12 dBd
7 Element Directional
50 ohms
300 watts
Base Mount Kit Included
29 1/4"

YA6 900
865-965 MHz
6 dBd
3 Element Directional
50 ohms
300 watts
Base Mount Kit Included
16 1/2"

## **Base Accessories**

### Stackkit

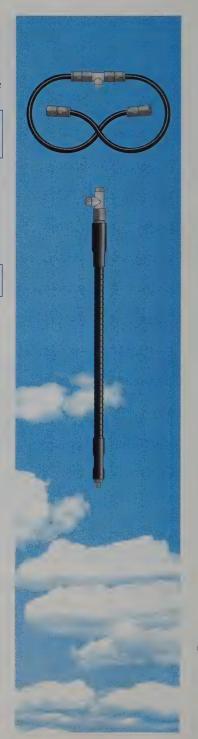
Combine even number of yagis to increase gain. One kit will join two yagis; three will join 4; etc.

YA1, YA2; UHF connector	Part No. Stackkit PL
YA1, YA2; N connector	Part No. Stackkit N
YA5, YA6; N connector	Part No. Stackkit 900

### **QSD**

Quarter-wave shorting device protects base stations from lightning and yet is transparent at its design frequency. Available with N or UHF connector. One end of QSD is a T adapter to existing 50 ohm transmission line while other end has heavy brass threaded ferule for connection to grounding system.

UHF connector	Part No. QSD UHF
N connector	Part No. QSD N





Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating
Mount Type
Height
Comments

KD4 146
144-148 MHz
Unity
1/4 Wave, Helical
50 ohms
25 watts
BNC Male
8"
Order KD4 136 For
35 ohms ICOM Radios

KD4 146 HQ
144-148 MHz
Unity
Helical, 1/4 Wave,
50 ohms
25 watts
BNC Male
10 1/2"
Order KD4 136 For
35 ohms ICOM Radios



KD4 146 ST
144-148 MHz
Unity
1/4 Wave, Stout
50 ohms
25 watts
BNC Male
3 1/2"
Order KD4 136 For
35 ohms ICOM Radios

KD14 2M HW
144-148 MHz
Unity
1/2 Wave, Telescoping
50 ohms
25 watts
BNC Male
8 1/2" to 42"





## KD4 2/70

144-148/442-448 MHz

Unity

1/4 Wave/Loaded 1/4 Wave

50 ohms

25 watts

BNC Male

8 "

Loaded 1/4 Wave at VHF And 1/4 Wave at UHF



Model
Frequency Range
Gain
Electrical Type
Impedance
Power Rating

Mount Type
Height
Comments

**KD4 220** 222-224 MHz Unity

1/4 Wave, Helical 50 ohms

25 watts BNC Male

5"

KD4 220 HQ

222-224 MHz Unity

1/4 Wave, Helical

50 ohms 25 watts

BNC Male

9"



KD4 220 ST	
222-224 MHz	J
Unity	
1/4 Wave, Stout	
50 ohms	
25 watts	
BNC Male	
3 1/2"	

KD4 446
442-448 MHz
Unity
1/4 Wave, Helical
50 ohms
25 watts
BNC Male
3"

KD14 446	
442-448 MHz	
Unity	
1/4 Wave	
50 ohms	
25 watts	
BNC Male	
6 1/2"	

### **Accessories**

#### Coax

RG-58 A/U is a stranded center conductor coax that serves well as a high quality, low cost coax for most applications below 512 MHz. The stranded center conductor offers very good flexibility and long life under most conditions.

### RG-58A/U stranded

Part No. CX Coax

Premium RG 58 A/U coax with stranded center conductor. Same specifications as UD COAX. This coax is ideal with magnetic mounts, trunk lid mounts, and trunk mount brackets due to the extra durability of the stranded center conductor.

### RG-58A/U Oval Shield

Part No. DS Coax

Larsen "Digi-Shield" RG 58/U dual shield coax. The best coax for low noise requirements. Solid center conductor, polyethylene dielectric; 100% duofoil aluminum shield, 95% tinned copper braid, PVC jacket.

### RG-58/U Digi-shield

Part No. UD Coax

"Digi-Shield/Tef" RG 58/U dual shield teflon coax. For applications where cable will be exposed to high temperatures or physical stress. Same specifications as UD COAX with teflon dielectric.

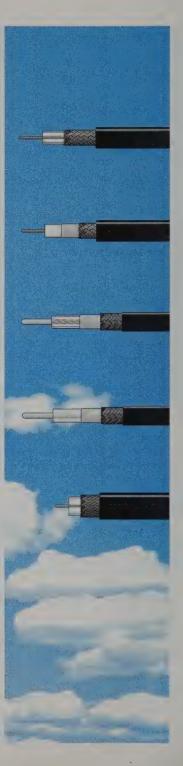
### RG-58/U Digi-shield,

Part No. DT Coax

This RG-8 sized coax uses a stranded center conductor, polyethelene dielectric and non-contaminating black PVC jacket that makes it ideal for outdoor applications when it will be exposed to ultraviolet light. Good for use between 27 and 900 MHz.

RG-213 Stranded

Part No. RG 213 Coax



#### Connectors

A wide variety of precision quality connectors are available for all Larsen antennas. Contact the factory for all options. Popular models for 800 & 900 MHz applications include:

Mini UHF	a. Part No. MPL Crimp
TNC Male	b. Part No. TNC Crimp
N Male	c. Part No. N Crimp
UHF	d. Part No. PL 259
Pliers Install PL	e. Part No. 58FCP
Universal	f. FME Crimp

### Miscellaneous

### Rain Caps

Makroblend threaded rain caps install on permanent mounts to protect from rust and corrosion whenever the antenna is removed.

NMO Mounts	Part No. NMO CAP B
LM/CM Mounts	Part No. LM CAP B
NLA Mounts	Part No. NLA Cap B

### Dual Band Coupler

A bi-directional passive coupler required for use with dual band antennas. Splits the spectrum, delivering VHF to the VHF radio and UHF signal to the UHF side. Isolation between VHF and UHF is 50 dB.

#### Part No. AD 2/70

### On-Glass Reinstall

For all glass mount antennas. Includes adhesive tape trimmable to fit any antenna brand. Also has allen wrenches, alcohol wipes, bonding fluid and instructions.

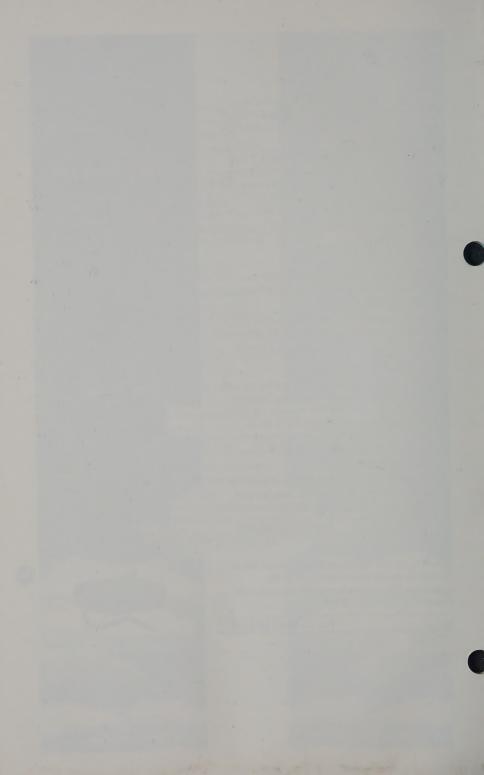
### Part No. KG Reinstall

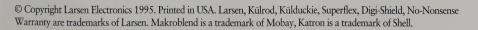
### Kulduckie Magnetic Mount

Attach a portable antenna to the mag mount for use outside the vehicle and connect coax to the transceiver. BNC connectors on the mag and coax. Comes with 12' of RG 58 A/U.

Part No. BNC MM BNC







LARSEN ELECTRONICS, INC.

3611 NE 112th Avenue

Vancouver, WA 98682

tel 360-944-7551

800-426-1656

fax 360-944-7556

CANADIAN

LARSEN ELECTRONICS, LTD.

149 West 6th Avenue

Vancouver, BC V5Y 1K3

tel 604-872-8517

800-663-6734

fax 604-872-8655

Available From:

